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AUTHOR Maor, Dorit; Fraser, Barry
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ABSTRACT

This case study explored the perspectives regarding graduate dissertation supervision held by professors and graduate students in a university science department. Expectations and personal relationships within the graduate dissertation supervision process are discussed in order to establish better supervision practice in a climate of expanding graduate enrollment numbers. Observations, interviews, and action research were used in gathering data. Appendix contains supervision of research students questionnaire. From the collection of opinions represented in this paper, it is clear that, in the natural sciences, students usually channel their research into the existing areas of supervision in the school. This situation creates postgraduate supervision in research teams, which is unique to the natural sciences and which encourages cooperative relationships amongst staff and students. This case study suggests that clear expectations and procedures should be established in order to provide supervisors and graduate students with better opportunities to establish a collaborative working relationship. (MKR)

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A CASE STUDY OF POSTGRADUATE SUPERVISION IN A NATURAL SCIENCE DEPARTMENT

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Dorit Maor and Barry Fraser

National Key Centre for School Science and Mathematics

Curtin University of Technology

GPO Box U 1987, Perth 6001, Australia

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A Case Study of Postgraduate Supervision in a Natural Science Department

> New postgraduates enter the system determined to make an outstanding contribution to their subject. By the time that they enter the final stages of thesis-writing for the degree they are determined to 'get it and forget it'! (p. 2)

> They come into the university or college knowing precisely who they are: successful and intelligent holders of well-earned qualifications. It is not long before they lose their initial confidence and begin to question their own self-image. (Phillips & Pugh, 1987, p. 3)

Introduction

This case study explored the perspectives regarding graduate dissertation supervision held by professors and graduate students in a university science department. Expectations and personal relationships within the graduate dissertation supervision process are discussed in order to establish better supervision practice in a climate of expanding graduate enrolment numbers. The paper attempts to contribute to the growing area of research on graduate supervision by reporting an investigation into personal and interpersonal factors in graduate dissertation supervision. Observations, interviews and action research were used in gathering the data.

The relatively low proportion of students completing their doctoral studies has concerned researchers in Australia (Moses, 1992; Zuber-Skerritt, 1992) the UK (Swinnerton-Dyer, 1982) and Europe (Blume 1986). Currently, there is a general perception that the quality of doctoral supervision has a significant influence on the completion rates of these students (Moses, 1992). Therefore there have been moves to improve the quality of doctoral supervision in universities within Australia and elsewhere.

Research Framework

In an attempt to ease the difficulties for graduate students during their research and thesis writing, and in order to help both experienced and inexperienced supervisors to make the process more effective, we conducted numerous supervision workshops for supervisors and research students within our university. With the intention of understanding the specific conditions of individual departments in the natural sciences, one of these workshops was conducted in a science department which is facing an increased enrolment in the PhD program and has some unique characteristics as a science department.

This paper describes the supervision situation in this particular department based on information from:

- a workshop session that we conducted with staff members and graduate students in the science department;

- a follow-up interview with an experienced supervisor in the department;
- a follow-up discussion with a group of full-time students in the department.
- a questionnaire on supervision of research students answered by staff and students.

These four different sources provided a complementary perspective on the complex issue of graduate supervision. This interpretive case study approach (Erickson, 1986) involved describing, interpreting and analysing the ways in which the supervisors and their graduate students perceived working relationships and supervision processes. This supervision workshop had similar features to workshops conducted in other university departments. However, several distinctive features of postgraduate supervision which are likely to be relevant to a science department emerged from the multiple methods used in this workshop.

Background

The Graduate Supervision Workshop

The science department involved in this case study is well-established with an academic staff of 17, together with 18 technical and other support staff and a number of other contract research scientists. In 1990, there were 8 doctoral students and 6 Masters students in the department. These numbers have increased dramatically and, in 1994, there were 24 doctoral students, 20 of whom were full-time, together with there were 6 Master's students, 3 of whom were full-time students.

Fourteen students and 5 staff members participated in the graduate supervision session. Because our workshop series had a strong 'research orientation', we used multiple methods (such as note-taking and audio-recording) to collect information. Discussion and activities during the workshop focused on the strengths, weaknesses and ways of improving supervision, and on students' and supervisors' perceptions of the supervisor's role and the supervisor-supervisee relationship.

Financial Support

Researchers in this science department use their research and consultancy funds to hire the department's equipment and use these funds to support the graduate students. A large quantity of the equipment in the department was bought from such money or research grants. Currently, the department is involved in two federally-funded Cooperative Research Centres and these also fund equipment that is used by graduate thesis students.

The students at the discussion session expressed satisfaction with their conditions within the science department. Students share rooms and computers and are encouraged and supported financially to attend conferences and present papers.

Characteristics of Students

There are 17 academic staff in this department, although less than 30% of the staff supervise most of the Masters and PhD students. This supports the evidence found by Low (1993) that the main bulk of research supervision and activities is carried out by only about 11% of academic staff, who also are responsible for producing most of the publications. Low's study focused on a survey of both staff and students and revealed the inadequacies of the support services, space, facilities and infrastructure provided to support high-quality research programs in Curtin University's engineering and science departments.

An interview was conducted with Jim, who is a co-director of the science department and who supervises a sizeable proportion of the PhD students in the science department. The graduate program for Masters and Doctoral students, which has been running for the last five years, has not settled down yet and, therefore, has external influences that are superimposed on the system. The students come to upgrade their qualifications, according to one of the senior academics in the department:

> In chemistry, very few people are doing Master's degrees. Generally the people who are doing a Master's degree come from industry and want to update their qualifications. Some students, who do not have the qualifications to get into the PhD program, firstly do the Postgraduate Diploma and then enrol in the Master's. If their progress is satisfactory, they can enrol in the PhD program. (Staff member)

A number of the students come back to do the fourth year (Honours) and then undertake the PhD part-time. Generally, the Master's students described above are older than those students who proceed straight from the Honours year to the PhD.

In the more common mode of acquiring a Master's or PhD degree, students who get a first class Honours degree apply for a scholarship or their supervisors organise a grant for them, such as a University Postgraduate Scholarship or Australian Postgraduate Research Awards (APRA) Industry Scholarship. Most of the students have a university scholarship and department support.

The part-timers who are doing an external PhD conduct their work in the context of their current employment. For example, the Chemistry Centre, an Australian government survey organisation, has an associate supervisor cooperating with a supervisor from the department. The external PhD students have fairly good facilities available at work, so they are doing their PhDs part time. However, because of the nature of research in science, it is unusual to do a PhD in science on a part time-basis.

Findings

The series of workshops and interviews provided research students with the opportunities to reply to questions about the supervision process that they are experiencing. In the following section there are reported some of the students salient ideas that highlight their needs and expectations.

The First Year of Doctoral Studies

In this science department, there are a few full-time students from Asia doing their PhDs. Talking with one of them, I realised that the students had some personal expectations which were not being fulfilled. A South-East Asian student expressed his feelings in the following way:

> I thought that doing a PhD would be a time of enjoyment. There are differences in the society, and because western society is more independent, I thought it would be more enjoyable. But it is not so and I faced many walls. Also my supervisor is interested when I get good results but, when I don't have a good result, he is not interested in speaking with me. This is my perception. I have problems which I have to overcome myself. I learn to cope with things myself. (Overseas student)

Another South-East Asian student expressed a more favourable attitude when he said that, "after discussion, my supervisor always asks me about personal things; this is good".

The Australian students generally were more critical than the South-East Asian students. They reflected on their first year of doctoral studies and emphasised the difficulties which they had encountered. Students made various comments:

> I enjoyed my honours year, the support and the feedback, and then the first year of my PhD was not a good year because my supervisor was overseas most of the year. Now I am back on track, but I wish it hadn't taken so long in my first year. I didn't achieve anything.
>
> My first year also was like that; there was not much going on. The first year is the hardest one.
>
> Yes, it was so bad that I thought "Why do I have to go there today?"
>
> The first year is really bad. After that, it gets better. (Various students)

These few excerpts from student interviews reflect the confusion and anxiety of first-year doctoral students. They felt that they didn't utilise the time wisely and that they did not achieve much during the first year. In response to my question, "How can we make the first year easier?", students responded by saying:

> I needed more personal support, more encouragement, motivation. I needed help just to get through this transition stage. It is so different from honours. Your self-esteem drops.

> When you do a Master's, you can't waste a whole year finding out about things because it's half of your time. It is different for a PhD. If your goals are too broad, you can get lost. (Students)

Students would like much more guidance in the first year even to the extent of the supervisor saying "do this experiment and, when you get your results, come and see me and I will tell you in which direction to go".

Although not all the students who participated in the interview expressed the need for such direct involvement of the supervisor, all agreed that more support is needed in the first year of studying. The students generally felt that, after the honours year, they got thrown into the doctoral study without "easing in". These overall comments from students highlight the need for supervisors and students to clarify their expectation in terms of the student-supervisor relationship in the early stages of the enrolment.

The Need for Induction

A practical suggestion that we discussed during the interview was having an induction program at the beginning of the first year to ease the difficulty of the new researcher. In general, very little is done in the way of induction and, therefore, in the first year the students experience feelings of confusion and disorientation. Based on students' comments, some of the people who come for a PhD do not know how to communicate with their supervisor. For example, one student said that "I treated him at the beginning of my study as the boss and this was wrong".

The students also expressed the need to know at the start their rights as postgraduate students. One student summed up the general problem:

> A lot of people come straight to the PhD. When you start, you don't know how to communicate with your supervisor, you don't have any organisational skills, and there is so much to ask. There is also the problem of time management. The supervisor wants the results from me and also wants me to finish the PhD, but how do you do it effectively? (Student)

Students had different suggestions, but most of them focused on an orientation at the beginning of the year:

> Maybe when we started, there should have been a meeting. There are tools with which you need to be familiar.
>
> You also need to be clear about writing skills.
>
> We need to know basic skills, how to get organised and how to manage our time. (Students)

The students agreed that the induction should include a general description of the learning environment and general expectations of the supervisors. Students should have opportunities to

express their expectations. The students coming from South-East Asia usually have a better orientation but the same issues should be discussed with them.

The Role of Supervisor in Helping to Write the Thesis

The students agreed that, while it is important that the supervisor does "a good job, there is a lot of responsibility on the student". Eventually they should become autonomous researchers. They also agreed that, if students are concerned about the supervision, they should talk with the supervisor or be sure that they know enough about his/her style of supervision before they start. Students should ask other people in order to find out whether their supervisor's style matches their style of learning. In research on supervision, it is suggested by Elton and Pope (1989) that "research students should be matched with their supervisors rather than be selected by them, and that both should play a part in the selection of the research topic" (p. 270).

In answer to my question about the extent to which a supervisor should be involved in writing the thesis, the students agreed that they are expected to write all of the first draft. Student felt that the supervisor should make suggestions or changes, but should not go to the extent of writing large 'chunks' of material. It has to be the student's own work and the student should be responsible for his/her work:

> The student is the one who is most intimate with his/her work. The student should be the original author.

> Your thoughts and conclusions should be in agreement with your supervisor. Before writing, you should be sure that you both have the same ideas. (Students)

Duration of PhD

The length of time taken to do a PhD is an important issue for the supervisor and the student. Most students in the science department take three and a half years to complete the PhD. There is a tendency to move towards three years for a full-time PhD but, usually, students tend to take longer. The reason for the length of time, according to a senior staff member, is that people don't devote themselves entirely to the PhD work:

> While you like the people to finish their PhD earlier, a lot of them don't see it as a time for sacrifice. They see themselves taking a job, going out during the week, taking weekends off and going on overseas trips. They do not see any reasons why they should undergo all sorts of deprivation while they are doing their study. This is a quite different mind-set to what the academic staff expect. (Staff member)

The senior staff member further emphasises his concern by saying that some staff claim that it is quite unreasonable to expect students to work more than 35 hours a week. The staff member commented that "when I did my PhD, I used to work long hours and also during weekends, which was acceptable. Some of our students have gone overseas twice on subsidised trips to conferences; they have terrific deals which are different from department to department."

When I raised this issue during the discussion with the students, it stimulated some of the following comments:

> I am married and have a personal life. Why should I sacrifice these years only for my study?
>
> That is probably the perception of every generation about the next one.
>
> I do not agree. You might not put in a lot of time in the first and second year, but you might make up for the time in the third and fourth years. However, it is good to know what our supervisor thinks.

This discussion led me to conclude that students should complete their thesis within a reasonable time frame (within three years of full-time study) and therefore they should be guided by their supervisor to set a realistic goal for their research.

Supervision in the Eyes of an Experienced Supervisor

To answer the question about whether students in the science department generally are satisfied with supervision, a staff member focused on the facilities available for the research students. He didn't think that the students were completely happy in the department:

> I don't think that they are satisfied. If you ask them, they agree that they have terrific facilities within the centre. But the whole department by itself has been miserable until recently, when we started to re-equip. ... So now we will save on technical support and everything will become self-funded. We have deficiencies in our equipment which are appalling even compared with developing countries. (Staff member)

According to the staff member, students at a personal level could say that they don't get the sort of supervision that they require. However, that could change from time to time and from day to day, and it is very difficult to get the ideal relationship between the student and the supervisor. Some supervisors see their PhD students every day, and discuss in great detail the experiments that the students carry out, while other supervisors do not know what the students have done until they write it up. There has to be some sort of balance but different students require different styles. This balance could vary from time to time depending on how the project is going. A staff member described how he tries to be a facilitator:

> I try to make sure that the students are not constrained by the technical facilities. I'm inclined to be less dominant in my interaction with my students than other supervisors. (Staff member)

Another senior staff member represents another style of supervision. His supervision style is to spend more time with the students and supervise them more closely but, as a result, he tends to take over the project which "is a concern for me, but I learn to live with that because, if the final outcome is good, you learn to roll with those types of concerns". This remark raises the issue of ownership and also the notion of supervisors' treatment of the students as autonomous learners for whom the staff are resources and facilitators.

Monitoring of Students' Progress

There are two strategies established by two senior staff members in order to monitor student progress during their research: six-monthly reviews of the student's research progress; and a policy of publishing articles. The two staff members arrange a meeting and have a discussion with over a dozen students every six months. This is a formal meeting in which the student has to report on his/her progress since the previous meeting. The students are expected to come to the meeting with a developed manuscript/progress report. They are supposed to develop their manuscript in three areas to enable the supervisor to see the progress of the research:

> So we can look at the previous reviews, after a six months lapse, and see what has been happening. This is important because, if someone's project is stalled, you really should know about it. When you visit people and ask "How are things?", people say, "terrific". So you actually pin them down like that. (Staff member)

According to students, monitoring student progress is a valuable aspect of the supervision process in terms of organisation of the research plans. A Master's student, who already has been at three of these scheduled meetings, commented:

> I already have got three progress reports which were very good and helpful, but I know other people who didn't have such a good experience. I personally had an opportunity to present my data and my results and the supervisors could point me in the right direction. You actually come out of this meeting with the feeling that you have achieved something and it gives you a boost. For some people, it was destructive because of the criticism which they received. They see it as a personal attack and it could generate bad feeling. But, if you get good results and feedback from your supervisor, you are satisfied. Some people went out crying from these meetings. (Student)

The student was satisfied with the progress which he was making in his study and the contribution of the six-monthly meeting with the two supervisors when he reported his progress. Another student criticised the method and claimed that he preferred not to have these formal meetings:

> Sometimes you are two months off schedule with your experiment and the preparations for the meeting create unnecessary extra stress, and you find yourself preparing for the meeting instead of working on the experiment. (Student)

However, not all supervisors in this science department are using the same technique. According to one student, because she sees her supervisor as frequently as needed: "I don't think I need these meetings". This supervisor tends to encourage his students to see him whenever they have something to discuss.

It has been recommended by Elton and Pope (1989, p. 268) that supervisors "should be advised to make contact with their second and third year graduate students at least three times each term". However, based on the examples provided in this chapter, this attitude has changed and both students and supervisors have adopted more flexible practices. A student who recently completed his PhD in the department said that it is important to have regular progress reports as well as regular meetings with the supervisor to discuss the progress of the research. From this student's experience, a well-

defined research program is the most important aspect of successful doctoral study because "only then should it be complemented with guidance and input from your supervisor to keep you on track".

Publication

The other strategy that the two supervisors in this School adopt is the explicit policy that students work towards publication during their study. This is possible as people are going continuously to conferences and presenting their research. The thesis is completed in parts rather than as a whole. Each part is self-contained and can be published. People develop their work and disseminate it in the literature. One staff member commented that "we developed it as policy and they have to establish their priorities". In answer to a question about whether it is feasible to convert a set of papers into a thesis, this staff member answered that he believes that it is:

> We have done it in the past. A lot of people don't do it. I think it is a defence mechanism which protects the supervisor, the student and the university. There is no way that a person can be failed in their PhD if they actually presented the stuff and it was refereed by their peers, and a thesis cannot be failed for lack of validity if it's being published. (Staff member)

Most of the students interviewed supported the approach of publishing along the way. They found it difficult, but rewarding, and an excellent tool for obtaining feedback on their research from experts in the field. One student commented:

> The last two theses were done this way. They actually were published in journals and then changed to chapters, and that is what I am aiming to do. (Student)

Another advantage that the students mentioned is that the papers are assessed by referees who provide the writer with good feedback on the quality of the PhD. A different perspective was given by a student who claimed that, because it is competitive and people are trying to get the results first, it is important to publish before someone else does. This opened a discussion about a very important issue which involves the nature of group work in this School, especially whether people work as a team or in isolation in a laboratory doing their research and competing to get the results before others do.

Team Work Versus Individual Work

The Master's and PhD students have their own weekly research seminars in which they give presentations and engage in discussion. Therefore, according to Jim, students are not working in isolation. Weekly seminars in the research groups and departmental seminars also create an atmosphere of team research. Some students collaborate with each other in their research so that they can work jointly on papers. One student can develop a technique and another student can try to apply it in their research. All this creates cooperative relationships.

The students agree that there are some common activities amongst them. They have a weekly meeting in which the first 10-15 minutes are devoted to discussion about problems associated with the practical work, and then someone presents a seminar about their own work or other relevant work.

The group of students supervised by another senior staff member do not meet at all to discuss issues and do not meet with the other supervisors' groups because "the topics are too specific and too different" according to one student, who emphasised that "you work in isolation, and you work on different things so you don't interact, only when you want to discuss how to use equipment". However, on a personal level, the students socialise with each other and most of them meet regularly for morning tea.

One student perceived more competition than team work: "There is competition, with people trying to get the results first". The reason was thought to be that too many people are in the same area studying under the same supervisor, as the student suggested:

> That is my fault because I joined last. I think my supervisor should cut down on the number of students that he has, particularly when you look at the area of research as it is not such a big area. Actually I am researching quite a narrow field, and there is not so much room in which to move. Everybody is rubbing shoulders with each other and basically racing against each other to get to the same spot. I think that the supervisor should keep the students apart, or otherwise he will have 10 copies of the same PhD. This would put a lot of pressure on us, because it is like competing instead of giving a little space and letting you do your own work. So that's the problem when working with the same supervisor. (Student)

At the end of the discussion, this student again raised his concern about lack of collegiality by saying:

> We work together, and there is plenty of support in the laboratory and we chat with each other, but there is not much support because a lot of people are heading towards the same type of goals and you have the same supervisor and the same time frame. If you fall on the way, no-one really stops and says: "I'll give you a hand and pick you up. We are friendly but not too supportive.

The situation that this student described is similar to the description provided by Phillips and Pugh (1989): "I am working alone in a lab, full of people, all research students, all working alone" (p. 12).

Choice of Topic

In response to a question about whether the department provides the topics for research so that whether students are unable to use their own original ideas, the following policy was revealed by a senior staff member:

> If we were using the equipment provided by the School, we might not be able to run the program. We bought more materials using money from research contracts, research grants and more recently from research infrastructure money. Just recently, we bought valuable equipment with Commonwealth funds and money from small business. The School has been very entrepreneurial from this point of view. We haven't been too good at getting Australian

> Research Council grants. We used to get funds from the Energy Resource Cooperation, but now that 'green' is the alternative we don't get money any more. (Staff member)

The students clarified that they do not have the option to choose their own topic for study because this department has established research areas. The individual student decides that "this is the supervisor with whom I want to work and, therefore, that is the topic on which he is working, or vice versa". This could increase the perceived lack of ownership because students have little or no say in the choice of the topic. Another student explained the way in which supervisors are allocated:

> I think it is different; you do your honours, and part of the degree is a mini-project. So, if you are doing your honours with one professor, the chances are that you continue with that professor for the PhD. Usually they come to see you and say: I want you to do a PhD with me. (Student)

This approach and the small number of supervisors involved with the majority of students in this department tends to restrict the research to a small number of areas and creates competition amongst the students. The ideal situation might be for the students to join a research community which can provide "collegial stimulus and support throughout a student's research training" (Elton & Pope, 1989, p. 271).

Strengths and Weaknesses

Based on note-taking and audio-recording during the supervision workshop for staff members and students, the following main issues emerged in relation to strengths and weaknesses in the science department.

- students being encouraged from an early stage of their research and thesis writing to write for publication;
- good staff-student relationships;
- equipment and technical staff support;
- international reputation of supervisors;
- staff being active in research;
- links with industry and outside organisations;
- students being trained in marketable skills;
- multi disciplinary nature of research projects;
- the applied nature of research.

Suggestions for improvement given by the students included:

- easing the enrolment process;
- improving students' facilities such as office accommodation and computers;
- providing instruction in time management skills;
- providing opportunities to meet key people in the department;
- having more help in establishing a professional network;

- providing written information about privileges and expectations;
- having improved library facilities.

The Role of the Supervisor

A questionnaire on supervision of research students (see Appendix 1) was responded to by the students and staff in the science department. It consists of pairs of conflicting statements in relation to the supervisor's role (Moses, 1992). The results suggested that there is agreement on most of the issues related to the role of the supervisor and that the staff and students represent a very cohesive group. There were small differences in opinions on three issues. The first one related to decisions about the theoretical frameworks adopted in a study. Most staff indicated that "students have the right to choose their own theoretical standpoint even if it conflicts with the supervisor's theory", whereas most of the students suggested that "in the end, it is up to the supervisor to decide which theoretical frame of reference is most appropriate".

The second issue relates to frequency of meetings between staff and students. Most of the students claimed that it is up to the student to decide when s/he wants meetings with the supervisor, whereas most of the staff agreed that "the supervisor should initiate frequent meetings with the student". This small difference in opinion indicates that students tend to be more responsible for their research than perceived by their supervisors.

The third issue is in the area of writing the thesis. Again the students suggested that the "supervisor should be very wary of contributing too much to the writing of the thesis". The supervisor acknowledged their responsibilities by suggesting that the "supervisor should help with the writing of the thesis".

In general, the staff and students in the this science department agreed on most of the issues which related to the admission process, the initial stages of research, the thesis and follow-up after the thesis is submitted. The small differences in opinion suggested that students would like to have more control and ownership over their work.

Summary

The discussion with the group of students, the interview with staff members and the postgraduate supervision workshop touched on many issues of supervision and alerted us to the fact that, with the increased number of research students, more should be done to provide new supervisors with supervision skills and to enable students to have their needs met.

Most of the Master's and PhD students in the department are full-time and are supervised by a small number of senior academics. The average time for completion of the PhD is three-and-a-half years. From the collection of opinions represent in this paper, it is clear that, in the natural sciences, students

usually channel their research into the existing areas of supervision in the School. This situation creates postgraduate supervision in research teams, which is unique to the natural sciences and which encourages cooperative relationships amongst staff and students. This case study of a science department suggests that clear expectations and procedures should be established in order to provide supervisors and graduate students with better opportunities to establish collaborative working relationship.

It was strongly suggested by the senior staff that students should start to publish in professional journals early in their careers, and that both staff and students see this process as a very strong predictor of success in the thesis and in the academic career because the student has to confront internationally accepted standards.

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APPENDIX 1
Questionnaire On Supervision Of Research Students

Read the pairs of conflicting statements listed on this sheet. You may not agree fully with either of the diametrically opposed statements. Therefore, please estimate your position and mark it on the scale.

	Admission		
1.	It is the responsibility of the School/Faculty to ensure that any student who is admitted can be adequately supervised and equipped in the student's chosen area of research	1 2 3 4 5	It is up to the student to thoroughly investigate the School/Faculty before accepting a place as a research student; both appropriate supervision and adequate facilities must be available
2.	The supervisor should be appointed by the School/Faculty	1 2 3 4 5	The student should choose the supervisor
	Getting Started		
3.	It is the supervisor's responsibility to select a promising topic	1 2 3 4 5	It is the student's responsibility to select a promising topic
4.	In the end, it is up to the supervisor to decide which theoretical frame of reference is most appropriate	1 2 3 4 5	Students have a right to choose their own theoretical standpoint even if it conflicts with the supervisor's
5.	The supervisor should direct the student in the development of an appropriate program of research and study	1 2 3 4 5	The supervisor should act mainly as a sounding board for the student's ideas and give advice
	Making Progress		
6.	The supervisor should focus only on academic issues	1 2 3 4 5	The supervisor should be concerned about students' personal feelings (of insecurity, frustration) concerning the thesis
7.	The supervisor should initiate frequent meetings with the student	1 2 3 4 5	It is up to the student to decide when s/he wants meetings with the supervisor
8.	The supervisor should know at all times about the current state of progress	1 2 3 4 5	Students should have the opportunity to find their own way without having to account for how they spend their time
9.	The supervisor should terminate supervision if s/he thinks the project is beyond the student	1 2 3 4 5	The supervisor should support the student right through until the thesis has been submitted, regardless of his/her opinion of the work
	The Thesis		
10.	The supervisor should insist on seeing drafts of every section of the thesis before it is submitted	1 2 3 4 5	It is up to the student to ask for constructive criticism from the supervisor
11.	The supervisor has direct responsibility for conveying the standard the thesis is expected to meet and seeing that it does so	1 2 3 4 5	The supervisor advises only and leaves all decisions concerning content, format, and standards to the student
12.	The supervisor should help with the writing of the thesis	1 2 3 4 5	The supervisor should be very wary of contributing too much to the writing of the thesis
13.	The supervisor should ensure that the thesis is finished not much later than the minimum period	1 2 3 4 5	As long as the student works steadily s/he can take as long as s/he needs to finish the work
	Afterwards		
14.	The supervisor's assistance should end when the thesis is completed	1 2 3 4 5	The supervisor should advise students about publishing articles and obtaining a job after finishing the thesis